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Soil Conservation

DEVOTED TO THE WISE USE OF LAND AND WATER RESOURCES

JUNE 1966
VOL. 31 NO. 11

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SOIL CONSERVATION SERVICE

U. S. DEPARTMENT OF AGRICULTURE

Recreation . . .

Case history after case history proves that farm and ranch land *can* be converted to recreation use with pleasure to the user and profit to the owner.

SCS fieldmen this month give us a far-flung sampling of experiences that vindicate USDA's faith in private enterprise to meet changing needs in land use.

We could publish in this issue only a few of the accounts submitted: WUC Ray Borchard's story of a shooting preserve-ranch operation in California (p. 247); WUC Edwin Engle on a ranch-campground in Colorado (p. 248); and Technician Leo Clark on a recreation farm in Ohio (p. 257).

Cleanup: Meantime, a Kentucky community demonstrates how local initiative, aided by technical and other assistance, can brighten and enliven the rural environment. SCS Work Unit Conservationist Luther Gabbard gives us the story (p. 251).

Erosion-Sediment: Erosion, as has been said before, is a two-edged sword. It damages where soil is removed, and again where it comes to rest.

Geologist Stanley Murdock reports on erosion-sediment studies in Indiana (p. 245) that are bringing a new understanding of the relationships of upland erosion rates to the filling of ponds and lakes under varying conditions of different watersheds.

Thus conservationists are gaining a needed awareness of the erosion process in its entirety.

Cover: A farm pond on a day in June in the Broad River Soil Conservation District, Ga., is a place for family recreation.

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A harvest of fringe benefits . . .

Popular Uses of Farm Ponds in New York

By Robert E. Myers
Wildlife Biologist, SCS, Syracuse, N.Y.

INCIDENTAL BENEFITS of farm ponds often outweigh the purposes for which they were originally built.

A survey of 200 pond owners in New York State showed that fishing, swimming, fire protection, and waterfowl production are leading uses, although livestock watering is a frequent initial reason for the construction.

This is not surprising, however, when one considers the diversified interests of the more than 15,364 landowners for whom the Soil Conservation Service has provided technical assistance for pond construction in New York since 1943.

Utility and recreation

The survey showed that the use of ponds varied by locality and occupation of the owner. In farming regions, ponds are built primarily for livestock water and irrigation; in other regions, recreation and the attraction of wildlife are the principal motives.

Statewide, of the seven most frequent uses made of these ponds, five are recreational. As reported in the survey, the ranking uses are: Fishing, 85 percent; swimming, 71; fire protection, 65; livestock watering, 50; ice skating, 49; picnicking, 40; and nature study, 32.

The fire protection value of a pond was rated high among farmers and summer residents in remote areas where other water supplies were scarce. The survey showed that 4 percent of the ponds had actually been used in fighting fires, most of which were in farm homes and buildings.

A few unusual uses of ponds included the training of retrievers, "surfboarding," sailing, and baptisms.

The utility and recreation-wildlife values of a pond are increased when livestock are fenced out and watered at a tank below the pond. Only 23 percent of the owners allowed their cattle to drink directly from the pond.

Fish vs. waterfowl

The steeply sloping shoreline found in many ponds used for raising fish is not an asset for waterfowl production. This construction feature reduces the zone of emergent vegetation which provides food and cover for waterfowl. Nevertheless, most of the ponds do have some emergent vegetation.

Observations revealed that the majority of plant species found in the ponds were not highly valued waterfowl foods. The dominant plants were of the rush and sedge families. The latter, especially, rate only poor to fair as waterfowl food. Most of these plants did provide good escape cover.

A grassed beach area adjacent to a pond is one of the recreation centers in a 20-acre camping area on a farm near Newfield, N. Y.

Waterfowl food plants were found in all zones of the pond. In general, the submerged plants growing in the deeper water were the most valuable to waterfowl.

Many of the emergent plants were valuable muskrat foods.

Waterfowl nesting cover

The vegetation in the fields adjacent to most of the ponds contained suitable grasses and weeds more than 7 inches high that would provide waterfowl nesting sites. Intense grazing and crop rotations often change or destroy nesting cover. Nesting cover conditions were most stable around ponds located on idle land or in large fenced areas.

Not all types of habitat improvements benefit waterfowl. Extensive plantings of evergreens surrounding a pond seem to discourage ducks from nesting after the trees reach 4 feet in height.

Fishing, even in the dead of winter, is a favorite use of New York ponds.

Seasonal use by waterfowl

Reports from the pond owners showed that New York ponds are used extensively during the spring and fall by migrating waterfowl for resting and feeding.

Ducks used 75 percent of the ponds surveyed during the spring migration and 68 percent in the fall. This is higher than reported for ponds in Ohio or Missouri.

Eighteen percent of the ponds were used by geese in the spring and 23 percent in the fall.

Geese seem to require no minimum size in the ponds they use. Several as small as 0.15 acre were utilized. The birds fed in nearby fields and returned to the ponds for water. A few ducks also frequented the small ponds, but larger flocks were observed only on the bigger ponds.

The surveyed ponds produced an average of six ducklings per brood raised to fledgling age, compared to five per brood in New York marshes.

Newly constructed ponds require at least 3 years to establish enough plant growth to attract nesting ducks. The critical factor is not

Provision of livestock water was the initial purpose of constructing many farm ponds in New York. A convenient supply for fire-fighting, in case of need, is a secondary benefit.

cover but the food supply. Where broods of ducks had been produced, there was a greater variety of plants than in the average pond. During the summer months, 35 percent of the ponds were frequented by ducks and their young as they ranged out from their nesting ponds looking for additional food.

Many of the ponds that were appraised as having a good growth of food plants and suitable nesting cover were never used for nesting. Also, several of the brood ponds appeared to lack either good quality food or cover. This emphasizes the fact that it is practically impossible to predict whether or not a pond will be used by waterfowl.

Most of the broods were produced on ponds with a stable water level.

Wildlife benefits

Waterfowl are not the only types of wildlife benefiting from farm ponds. Several of the pond owners reported that a great variety of songbirds, swallows, and herons had been attracted by their ponds. They had observed such other kinds of wildlife as great blue heron, little blue heron, green heron, egret, gulls, deer, fox, raccoon, opossum, beaver, muskrat, and mink.

How does human activity associated with the recreational use of farm ponds affect waterfowl nesting? The survey indicated that mallards are one species that will nest near actively used farm ponds, even in the vicinity of buildings and roads, if suitable cover is available. Six percent of the broods produced on the surveyed ponds, most of which were used intensively for recreation, were raised within 100 yards of buildings and roads.

It is obvious that pond owners are harvesting a generous package of fringe benefits from their efforts—and so are many kinds of wildlife. ♦

Erosion-Sediment Studies

Indiana surveys link accumulations in reservoirs to soil loss rates on uplands

By Stanley H. Murdock
Geologist, SCS, Paoli, Ind.

SOME of Indiana's rolling cropland is losing more than 20 tons of soil an acre each year.

These excessive rates, mostly due to sheet erosion, are confirmed by recent reservoir sedimentation surveys by the Soil Conservation Service and other members of an interagency committee in Indiana.

Reservoirs, regardless of their intended use, trap most of the sediment originating from eroding areas upstream. Estimates of erosion rates, therefore, are essential to engineers to design structures with proper space for sediment storage.

The Soil Conservation Service in the early 1940's began sediment surveys on several Indiana reservoirs. The U. S. Army Corps of Engineers conducts continuing sediment studies on the reservoirs it operates. Suspended sediment load and water quality measurements are also being made on certain Indiana streams.

Design information

The information obtained from these studies has been useful in planning and designing water impoundments. Although the need for much more information has been recognized for some time, only in the past few years has coordinated action been taken to meet it.

In 1963 a statewide interagency committee came into being for the purpose of studying erosion and sedimentation. Besides the Soil Conservation Service, active participants are the Corps of Engineers, U. S. Geological Survey, Division of Water and Geological Survey of the Indiana Department of Nat-

A probe is used to determine depth of sediment deposits along a sampling line across a lake.

Active erosion, evident in many places on the uplands, is verified by measurements of sediment collected in reservoirs. One year after construction, an unprotected open ditch (l.) is sloughing and feeding sediment into the drainageway. A barren building site on the edge of a city (r.) also is a critical erosion area.

ural Resources, and Indiana State Board of Health.

The statewide committee meets every 2 or 3 years to assess progress and provide overall guidance. A subcommittee selects projects, assigns fieldwork responsibilities, holds semiannual meetings, and makes periodic progress reports to the cooperating agencies and organizations. The SCS representative is subcommittee chairman.

The original project plans anticipated comprehensive studies to include hydrology, geology, meteorology, and other related interests. The lack of funds, however, has limited current studies to erosion and sedimentation. Present plans call for a sedimentation survey of a different reservoir each year, including an inventory of the erosion characteristics of its drainage area.

Removal and deposition

Sediment surveys reveal the amount, nature, and distribution of sediment in reservoirs and their entrance channels. The findings are used to determine annual rates of sediment accumulation.

The upland erosion study determines annual rates of soil loss occurring in the reservoir's drainage area by use of soil loss equations to compute sheet erosion and other accepted Soil Conservation Service procedures to estimate the extent of other types of erosion. Computed quantities of upland erosion are adjusted and correlated with the sediment survey to provide a basis for estimating sediment storage requirements.

A sediment survey of a reservoir begins with the establishment of a system of ranges or sampling lines across the impoundment area. Depths of water and thickness of sediment are measured at intervals along each range.

For reservoirs where no previous surveys have been made, the measurements may be made by spudding or probing. The spud, a heavy iron instrument calibrated in tenths of a foot and attached to a marked rope, is dropped vertically from the boat so that it penetrates the sediment and into the original surface soil. It is then drawn to the surface, and the thickness of sediment is determined.

Where the top of the sediment and the original bottom surface are easily discernible, a probe or sounding pole made of steel, aluminum, or wood can be used from the boat to measure the thickness.

If a reservoir has been previously surveyed and the original ranges can be located, resurveys can be made by the use of sounding instruments, such as a fathometer. The U. S. Geological Survey, in cooperation with the Division of Water, Indiana Department of Natural Resources, arranges for and carries out the fathometer studies.

Taking another look

A boat carrying the equipment is moved at a constant speed along the range. Sonic impulses emitted by the fathometer are reflected from the sediment surface back to the instrument to indicate the depth of water along the range. The difference in water depths from one survey to the next indicates thickness of sediment that has accumulated during the period between the surveys.

Samples of the sediment are obtained for determining volume-weight relationships and other information for comparisons with the upland soils.

Results from the Indiana studies show that rates of sediment accumulation range from about 300 to 3,500 tons per square mile annually. The loss of reservoir storage capacity due to sediment accumulation ranges from less than one tenth of 1 percent to more than 1 percent annually. Although

the rate of sedimentation may not seem too serious in some instances, it should be remembered that the sediment accumulation in a reservoir represents an absolute minimum figure for the amount of erosion occurring in its drainage area.

The delivery ratio

Variables affecting both erosion and sedimentation must be studied. With other considerations being equal, a drainage area with the most cropland produces the most sediment.

In Indiana's climate, larger drainage areas deliver a smaller proportion of the total eroded material to their reservoirs than do smaller drainage areas. Similarly, a highly channelized drainage area delivers more of the eroded material to a specific measuring point on a stream than one with few drainageways.

The ratio of sediment yield at a specific downstream point to the gross, or total, erosion occurring in the drainage area is called the "delivery ratio." These concurrent studies of erosion in the watershed and the accumulation of sediment in the reservoir provide the information for determining the delivery ratio and for analyzing the factors that influence it. In view of the ever-increasing need for water for many purposes, erosion-sediment relationships take on great importance.

Of particular interest to the Soil Conservation Service is the effect of land treatment measures in reducing sediment. Although some information is available at research plots, larger watershed drainage area studies may be more realistic.

Agencies and organizations concerned with water resources in the State of Indiana agree that the maximum potential economical use of each impounding site should be utilized. The accuracy of sediment storage estimates is important in designing economical multipurpose dams. ♦

Game and Cattle Make a Paying Combination for Rancher

By Ray C. Borchard
Work Unit Conservationist, SCS, Grass Valley, Calif.

A GRADUATE forester with a yen for game management is demonstrating that game and livestock make a good combination for ranchers caught in the squeeze on the cattle industry.

Ray Conway of Grass Valley, Calif., is sole owner of North Star Pheasant Farm; part owner and manager of Quail Valley Enterprises' 1,250-acre ranch; and manager of another 2,000-acre ranch nearby which he leases. Conway's partners in the 1,250-acre ranch are Dr. Harry Stewart and Joel Bierwagen.

Quail Valley Enterprises has developed the Quail Valley Shooting Preserve on the ranch. It also has a trap and skeet shooting facility under franchise from a sporting arms manufacturer.

The combined ranching and hunting enterprise is operated under a farm conservation plan in cooperation with the Nevada County Soil Conservation District.

From chickens to pheasants

This multifaceted operation had its beginnings in 1942 when Conway acquired a chicken ranch. It wasn't long before Conway was beginning to raise pheasants also.

After World War II, the poultry market was no longer profitable and Conway switched to pheasants entirely. Now he raises 8,000 to 10,000 a year. These are sold to pheasant hunting outfits, including the Quail Valley Shooting Preserve.

Livestock goes with the pheasant enterprise. Cattle are used as a

Ray Conway and his dog make a team approach on one of the brush piles placed in fields for quail cover.

"tool" for keeping grass at a desirable level for game management by regulating the time and intensity of grazing.

On the 1,250-acre ranch, 300 acres is in irrigated pasture and 920 acres in dry pasture. The rest is in corrals and homestead. The farm also has three large ponds that help supply the sprinkler irrigation system. Numerous small stock ponds have been constructed in the dry pasture areas by the previous owner.

The 2,000 acres leased by Conway has been fitted into the hunting enterprises.

The skeet and trap range has six fields. Facilities include a novel clay target game, "Crazy Quail," which realistically duplicates many angles encountered in field shooting. It also includes a night-shooting setup, a modern clubhouse, and a large parking area.

The Soil Conservation Service provided engineering help in leveling the area for the skeet facility. This involved moving 7,000 yards of earth.

Trial plantings of reed canarygrass in wet areas and Perlagrass in other areas are being studied for potential wildlife usefulness. The canarygrass will break up larger areas by providing food and cover for pheasants. Perlagrass will provide food and cover for upland birds and deer.

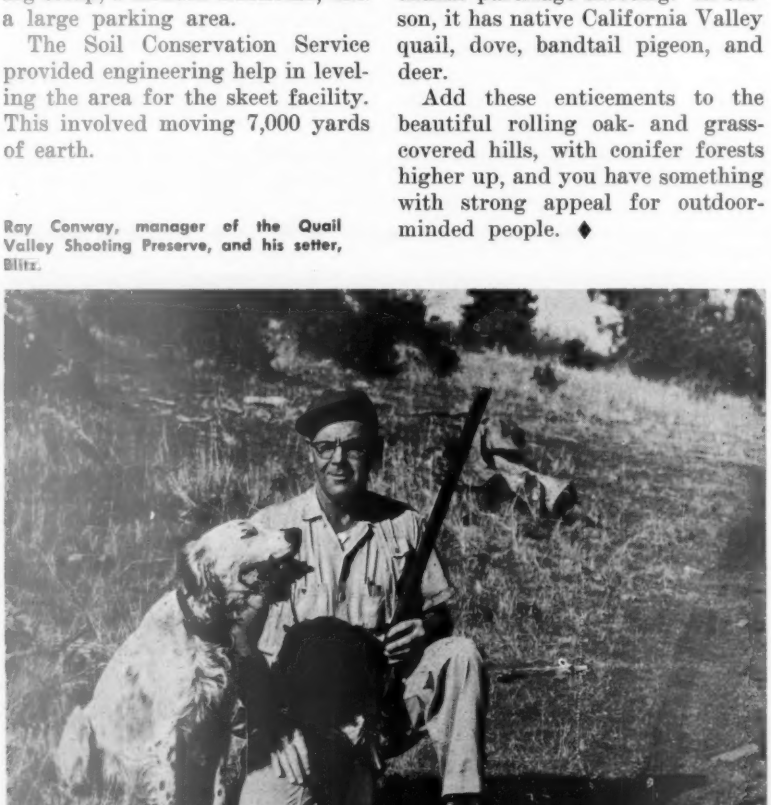
Ponds used for irrigation are stocked with bass, bluegill, and channel catfish to give club members an opportunity to enjoy some fishing. California Department of Fish and Game has helped with this phase of the project.

The completed recreation and ranching enterprise was opened in August of 1965. Ten thousand clay birds were used on opening day and 9,000 the next day.

The hunting preserve offers pheasant, bobwhite quail, and chukar partridge shooting. In season, it has native California Valley quail, dove, bandtail pigeon, and deer.

Add these enticements to the beautiful rolling oak- and grass-covered hills, with conifer forests higher up, and you have something with strong appeal for outdoor-minded people. ♦

Ray Conway, manager of the Quail Valley Shooting Preserve, and his setter, Blitz.



Recreation Area Pays Off for Colorado Rancher

(Picture on back page)

SOL TUTTLE of Gunnison, Colo., is finding that ranching and recreation do mix and provide a good living. His 10-acre campground and recreation area is turning out to be a profitable and enjoyable addition to his already established cattle ranch and trout farm operation.

"I decided to add the recreation enterprise," Mr. Tuttle said, "because it appeared that with completion of the Blue Mesa Reservoir, a modern campground facility near the reservoir and the city of Gunnison would provide a needed service to the public and add income to the overall ranch operation."

When Kampground of America representatives approached Mr. Tuttle early in 1965 about taking over one of their franchises in the area, he had a design of the campground developed.

In planning the recreation area he tried to use the natural features, including native cottonwood trees, to their best advantage.

A cooperator with the Gunnison Soil Conservation District, he contacted the local Soil Conservation Service office for technical assistance in the design and construction of a small lake to add water recreation and natural attractiveness.

The main building on the premises was completed in the spring, housing the office, a camp store, living space, and restrooms.

In early summer a road system was developed and water, electric service to each trailer space, picnic tables, and barbecue grills were installed. Another area was designed for tent camping.

The 1½-acre, 5-foot-deep lake was completed during the latter part of July. All of the excavated materials were used in the roadways and as base material for

trailer spaces on both sides of the lake.

Waterbikes and canoes already are available, and plans call for addition of two small sail boats.

As an added attraction Mr. Tuttle has obtained approximately three-eighths of a mile on Gunnison River for trout fishing at no charge to guests. He also has a stocked lake open to guests and the public.

He said many people prefer to use his equipment and have a guaranteed catch from his ponds at 10 cents an inch than to buy a State license and fishing equipment, hoping to catch fish from nearby streams.

Reviewing the campground and recreation operation for the first summer, Mr. Tuttle noted that "many travelers selected their cross-country routes so they could stop at Kampground Organization of American established areas."

During the first 5 weeks of the operation he said he had an average of 20 units a night at his facility. He feels that with early local advertisement this year he will be able to increase this to 40 units, to provide him a fair return on the approximately $30,000 invested in land and facilities.

Future plans call for 12 to 15 additional camp spaces with water, electricity, and sewage facilities for guests who want to stay for extended periods, or possibly all summer.

Tuttle's future plans also include a large boat for sightseeing and fishing on Blue Mesa Lake and development of permanent tent installations for those who wish to spend a night camping out.—EDWIN P. ENGLE, *Work Unit Conservationist, SCS, Gunnison, Colo.* ♦

Conifer Hedges

For coniferous hedges seedlings that have been transplanted once in the nursery are preferable, i.e., seedlings 3 to 4 years old from seed. ♦

SCD-Owned Land in Connecticut Town Is Conservation Showcase

By Albion L. Weeks
Work Unit Conservationist, SCS, Brooklyn, Conn.

THE WINDHAM Soil and Water Conservation District in northeast Connecticut is making good use of a 76-acre tract it owns and operates as a conservation showcase.

The land was given to the district when the county form of government was abolished in Connecticut in 1960. Prior to that time the district was concerned mainly with farmland.

The broadened program of the sixties produced the need to serve a variety of interests involving private and public lands.

With the donated land strategically adjoining the Agricultural Center Building in the town of Brooklyn the district supervisors got help from the Soil Conservation Service and prepared a complete and coordinated conservation plan.

The author observes the good growth of a fertilized crabapple tree planted in 1961.

A small part of the acreage is in grass. The remainder is devoted to a variety of woodland, wildlife, and recreational land uses. Under this setup the district can show alternatives that can be used in a conservation program.

Conservation practices

Practically all the woodland conservation practices applicable in eastern Connecticut are on display—tree planting, underplanting, weeding, thinning, pruning. Wildlife measures include cutback and planted borders, woodland clearings, annual food plantings, and others.

An important feature is a system of connecting grass-legume strips 60 to 80 feet wide which traverse the area. This system serves a multitude of purposes—firebreaks and access roads, nature trails, wildlife habitat, hiking and bridle paths. A variety of grasses and legumes are growing in the strips, including clovers, vetches, birdsfoot trefoil, reed canarygrass, tall oatgrass, and orchardgrass.

Where the woodlands meet the strips, wildlife borders are being developed by cutting or planting.

Fertilizing wildlife shrubs

Perhaps the most dramatic lesson is seen in the effects of fertilizing and mulching wildlife shrubs. Many landowners of the Northeast have been discouraged after a few years due to high mortality or puny growth in their wildlife plantings.

On the district's land, supervisors show fruiting plants 5 to 10 feet high grown from seedlings set

This 1-acre trout-stocked pond is on the 76-acre tract owned and operated by the Windham, Conn., Soil Conservation District.

out in the spring of 1961. Fertilizing and mulching have made the difference.

A wide cross section of Connecticut landowners have found the 76-acre tract a fertile source of ideas to be applied to their own land.

Private landowners, towns, and municipalities, fish and game clubs, and schools all find answers on the district tract to their conservation questions.

On one plot the Soil Conservation Service is testing new plants. The wide variety of plants and practices makes up a conservation arboretum. It is a place where people become familiar with the trees, shrubs, grasses, and legumes that are important for conservation purposes.

Town conservation commissions have become an important force in southern New England, and the commissions and the district have many aims in common.

Promotion of conservation on private land is a basic aim and the Windham Soil Conservation District is using its tract to point out many of the conservation opportunities that exist on private land and how to develop them. ♦

Gully Planting Shades Seedlings

PUTTING transplant beds of other evergreens between rows of pine trees is helping Hoskins Shadow and his son Don, nurserymen of Winchester, Tenn., to realize extra benefits from an 18-year-old pine plantation.

The Shadows acquired the pines several years ago when they bought additional land to enlarge their nursery, which is a cooperator with the Franklin County Soil Conservation District. The tract included 2 acres of loblolly pines set out by the former owners to halt erosion on severely gullied slopes. The trees had completely healed the gullies and laid down a thick mulch of needles.

As their nursery continued to expand, the Shadows needed more land to grow the popular broadleaved evergreens. It occurred to them to put the transplant beds in the shade of the pines and they prepared the first ones in the spring of 1964.

The first row of pine trees was left standing. The second and third rows were removed and the wood used for firewood. The area was smoothed with a bulldozer, covered with manure and peat moss, then thoroughly disked. Beds were edged with cross ties, and the holly and other evergreen plantings were put in.

The pines provide the partial shade needed by the seedlings. In addition, their falling needles make a thin mulch over the beds in winter.

Hoskins Shadow has been in the commercial nursery business for 25 years. In 1963, son Don finished a 4-year course in horticulture at the University of Tennessee and came into the family business. He and his father have developed a complete conservation plan for their nursery with the conservation district.

The plan includes a system of terraces on the slopes above the pine plantation to divert runoff water. The terraces empty into a sod waterway which runs into an irrigation pool used for the nursery.—C. M. HENNINGER, *Woodland Conservationist, SCS, Nashville, Tenn.* ♦

Hoskins Shadow and son Don look over plantings of evergreens placed between pine trees. Beds are located in space where alternate rows of pines had been removed.

A cleanup campaign . . .

Conservation Helps Bring Beauty to Kentucky County

By Luther C. Gabbard
Work Unit Conservationist, SCS, London, Ky.

CONSERVATION measures and cleanup campaigns are working together to bring new natural beauty to Laurel County, Ky.

The efforts and their results are receiving widespread attention. London, the county seat, twice has captured the Distinguished Achievement Award from the National Cleanest Town Contest.

Community improvement began with recognition by the London-Laurel County Development Association that plans for stepped-up tourism and recreation in the county could not be carried out in an ugly environment. Through an aggressive Beautification Committee, the Association initiated a "Cleanup, Fix-up" Campaign for London and Laurel County.

London lies at the crossroads of highways U.S. 25 and Kentucky 80. It is the focal trade center for southeastern Kentucky in the Appalachian region.

Land use problems

Steep hills, cliffs, and rough terrain cover much of the land in Laurel County. Practically all the land level enough for continuous row crops is located in small tracts along creeks and streams.

Most of the soils are of sandstone or acid shale origin with low fertility. With agriculture as the base of the county's economy, opportunity for economic betterment was low. Development of resources and facilities now are bringing a yearly gross income of nearly $4 million into the county.

Much of the ugliness that has blighted the Laurel County landscape is the result of using soils for purposes to which they are poorly suited. The dumping of inadequately treated sewage, industrial wastes, and silt from eroding lands into waters of the county continues to impair the usefulness of these waters for industrial, domestic, and recreational use.

Other local problems include strip mining, which in many cases has caused soil erosion, stream pollution, accumulation of stagnant water, and seepage of contaminated water.

These problems have lowered the value of agricultural land and counteracted efforts to protect and improve soil, water, and related resources.

SCD work helps

A primary force in improving natural beauty has been the Laurel County Soil Conservation District, assisted by the Soil Conservation Service. Since the district was organized in 1946, land owners and operators have been assisted in planning and installing more than 935 acres of grassed waterways, 835 farm ponds, 1½ million trees, and 59,879 acres of woodland improvement practices.

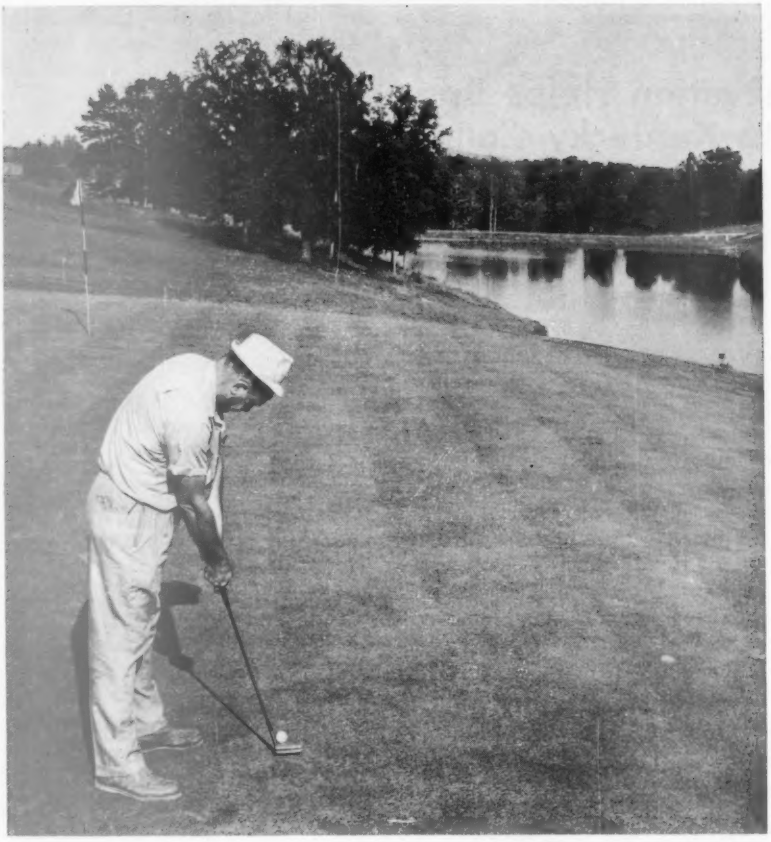
In addition, several thousands acres of hay and pasture land improvements have been applied. In the past 3 years, 3,877 acres of cropland has been converted to grassland.

Land users cooperating

Some 800 land owners and operators are cooperating with the district in carrying out planned soil and water conservation work. These activities not only have added to the economy of the area, but also have improved the beauty and usefulness of resources.

SCS assistance in preserving and developing natural beauty has not been on farmland alone. The nonagricultural landowner likewise has been helped in stabilizing critical areas, making recreation and wildlife plantings, and in using soils information in planning for sewage disposal, parks and industrial sites, and other uses of land.

Plant Manager Gordon E. Largy (l.) discusses conservation plan for the textile firm in background with W. L. Browning, supervisor of the Laurel County District.



An SCS-designed pond and technical help in green and fairway management add to the beauty and usefulness of the London Country Club golf course.

With SCS technical assistance, a recreation pond has been constructed, 5,000 feet of tile drains installed, and 2 acres of grassed waterways shaped and seeded at the London Country Club. Technical assistance has been provided in maintaining greens and 79 acres of fairway, in addition to planting 2 acres of trees and other beautification projects.

A conservation plan also was developed for the Caron Spinning Company plant site. The plan included stabilizing critical areas by planting shrubs and white pine trees around banks and adjacent to the highway, installing 2,050 feet of tile drainage and 3 acres of grassed waterways, plus land smoothing and other measures.

A conservation plan was developed last year by the London Independent School District. As a part of the plan, critical areas were stabilized with crownvetch and Ky-31 fescue. SCS technicians recommended the use of netting to help hold mulch in place to protect the areas until the plants were established.

Other consolidated schools with plans developed and carried out include Johnson and Keavy Elementary Schools, where the Soil Conservation Service assisted in planning, layout, and application of lawn and playground areas, grassed waterways, diversion channels, tile lines, and woodland conservation practices.

Other beautification projects include planting pine trees to screen junk yard areas around London, and planting autumn olive for wildlife food and cover around pond areas. Consultive assistance is annually provided to more than 100 nonagricultural landowners on various problems related to conservation and beautification.

In cooperation with the Kentucky Division of Fish and Wildlife, a conservation plan with emphasis on recreation and wildlife has been developed on the Laurel County Sportsmen Club near London. At the present time a conservation-recreation plan on a 75-

The author inspects pine (l.) and autumn olive (r.) planted on strip-mine spoil to improve the land and benefit wildlife.

Gordon Largy and the author discuss hemlock planting made to beautify textile plant site.

acre area bordering on Levi Jackson State Park is being developed for recreation.

School projects in community improvement have contributed much to the success of the cleanup drive. Johnson and Keavy Elementary Schools organized work corps and cleaned all the public dumping places in their communities. They also volunteered their help to people in the school district and canvassed all roads for the removal of junk cars.

The State Department of Highways donated the use of its trucks and crews for 6 days to pick up litter and refuse throughout the county.

London's new garbage truck, one of the most modern on the market, is now in operation, and a new street sweeper for the city of London has been purchased and placed in service.

Many stores and offices have planted flowers and shrubs in boxes and cans.

A "service station of the week" is selected by a committee who visits the stations and scores them on appearance. Several service stations have set shrubbery, planted flower boxes, and are keeping the service areas and restrooms neat and attractive. Curbs, litter cans, and pavements are newly painted and washed clean.

"There is still litter to be picked up beside the roads in the county," said Mrs. Edith Feltner, chairwoman of the Beautification Committee. "The campaign will not be stopped until all the litter has been cleaned up along with all the junk cars in the county."

There is conservation work yet to be done, too; it is a continuing job. And as it spreads across the land, it too will bring new beauty to Laurel County. ♦

Conservation plantings help stabilize a critical area in the Rolling Acres subdivision in Laurel County.

USDA Agencies Join in Solving Water Problem

A RAGING TORRENT in spring; a feeble trickle in midsummer.

That was the story of Shell Creek in Wyoming before watershed farmers got together with the Soil Conservation Service and other cooperating Department of Agriculture agencies to formulate a long range program to assure a dependable water supply.

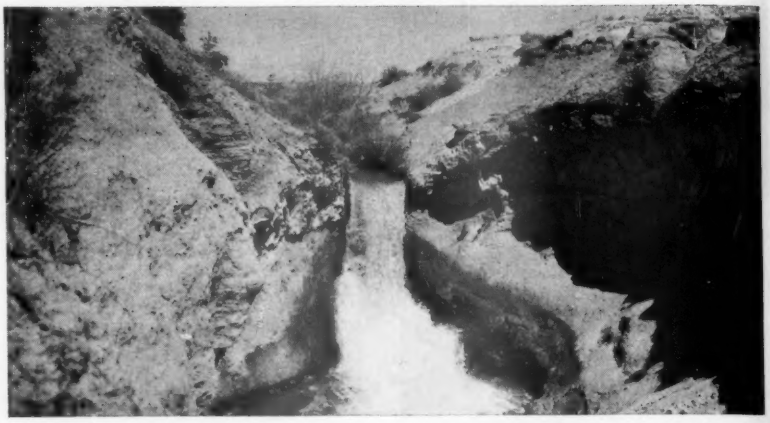
For 60 years, maintenance of the McDonald Ditch-Shell Canal east of Greybull, Wyo., was a serious problem for 78 farmers dependent upon it for irrigation water and their livelihood on more than 4,000 fertile acres.

The problem was complicated because half of the irrigated land is at the head of the canal, separated from the other half by an arid area known as the badlands, through which the Shell Canal twists for 30 miles to deliver water to the lower farms.

About 1950 the landowners, through the Shell Valley Soil and Water Conservation District, asked for and got technical assistance from SCS, cost-sharing from the Agricultural Stabilization and Conservation Service, and financing from the Farmers Home Administration, to make improvements in the badlands section of the canal, as the first step in rehabilitating the system.

In 1957, the Shell Reservoir, a 2,000-acre-foot storage facility was constructed to supplement ancient Lake Adelade, built in 1915. Big Horn County ASCS Committee shared in the project cost, and FHA financed the group's share.

With the late season water supply problem solved, the next phase was replacement of an inadequate diversion structure on Shell Creek and more upstream storage. A new SCS-designed structure that would withstand spring floods and provide dependable control was installed in 1964, protected by rock dikes and riprap, with manually operated steel gates for flow control. ASCS again cost-shared.—DOMINIC FEELEY, *Work Unit Conservationist, and* ROY BUCHMEIER, *Soil Conservationist, SCS, Greybull, Wyo.* ♦



Shell Creek, en route to the Big Horn River, flows through some rough country marred by wind and water erosion.

A new structure on the McDonald Ditch-Shell Canal (c.) helps eliminate a bottleneck in the "badlands" near Greybull. The diversion structure (bottom) contains 158 cubic yards of concrete and 5 tons of reinforcing steel to withstand spring floods.

Peace Found on Blayer's Blvd

"IF you've ever lived in the city, then you know what we are after up here," remarked Al Blayer as we walked over his property.

Blayer explained that he wanted peace, quiet, and a chance to get back to nature.

A New York newspaper man, Blayer's not wealthy. He is simply a city man with a wife and two teenage boys who has learned to appreciate the everyday things of Vermont most of us take for granted.

Together he and I worked up a conservation plan for his 35 acres of Green Mountain foothills in Shaftsbury. He made the decisions as I pointed out the alternative uses he could safely make of the land.

Basically his property is old pastureland now grown up to larch, spruce, and hemlock trees with an occasional opening here and there. Much of the land is dry and rocky with the exception of a swamp about 2 acres in size.

Blayer's first question was: "What can I do with what I have to keep it wild and yet improve it?" Since he had no desire for crop or pastureland, the use dictated wildlife and woodland.

To wake up in the morning with fresh air in his lungs, birds singing, and a chance to see wild flowers, ferns, trees, and shrubs were other objectives. Toward this end Blayer applied conservation practices to provide water, cover, and food for wildlife and plants.

The swamp made a natural place to develop water. In line with long-range desires, he dug a pond deep enough for fish and large enough to attract birds and animals. It is now stocked with trout and attracts wood ducks.

Cover for birds and animals presented no real problem, for the thick-growing spruce and other brush provided plenty. But, as time goes by and the trees grow larger, this will change. So, Blayer decided to maintain scattered open plots by cutting back the spruce in order to maintain a low brushy cover.

Blayer also considered food. The open plots would provide brushy growth for deer to browse and wild blackberries and raspberries for the grouse, song birds, and bears. In addition, we found a couple of old apple trees which, if pruned and released from competing vegetation, would provide food for birds, deer, bears, raccoons, and bees. Also present were some beech and wild cherry trees, and juneberry, mountain-ash, and highbush cranberries that would produce food.

David Barton, Bennington County forester for the Vermont State Forest Service, showed Blayer how to thin the larch stand and make the release cuttings. He and his boys have made progress in carrying out the plans.

Thus, "Blayer's Blvd.," as his entrance is marked, provides conservation of peace, quiet, woodland, and wildlife for a family seeking refuge from city life.—LAWRENCE H. PRATT, *Work Unit Conservationist, SCS, Bennington, Vt.* ♦

Al Blayer's log cabin beside the wildlife pond he built on his country retreat.

District Gives Flagpole to USDA

Legionnaires taking part in the flag raising ceremony in Jennings, La., are Joseph L. McHugh (l.), J. W. "Bill" Watson, and C. E. Stackhouse.

THE GULF COAST Soil and Water Conservation District bought the flagpole for the new building for USDA agencies in Jennings, La., and USDA employees installed it.

Claude E. Stackhouse, retired businessman and Legionnaire for 46 years, led a group of American Legion notables in conducting the flag-raising ceremony. He was one of the original organizers of the Louisiana Wild Life and Fisheries Commission and recipient of the Woodmen of the World Conservation Award.

Also participating were Joseph L. McHugh, another 46-year Legionnaire and former State conservation commissioner, and J. W. "Bill" Watson, former parish police juryman and active supporter of the conservation movement.—J. P. MAXWELL, *Work Unit Conservationist, SCS, Jennings, La.* ♦

Daily Water Use

The average family of five in 1962 used 275 gallons of water a day in the home equipped with modern facilities. When that same family camped without modern facilities, it used 10 gallons a day. ♦

Transforming 80-Acre Farm in Mississippi

A Negro farmer-cooperator with the DeSoto County Soil Conservation District, Miss., James Hill, says he "tried conservation a sample at a time and was satisfied with the results."

H. I. Weeks, SCS work unit conservationist, and C. D. Potter, soil conservationist, Hernando, agree with Hill that there has been an "amazing change" in this 80-acre farm since 1954, when the first conservation practices were applied.

This native-born DeSoto-countian had farmed all his life, bought his own place in the fall of 1948. He had divided it in half—crops on one side, pastures on the other—without thinking about the capability of the land. He had a few lean cows that weren't doing as well as he had hoped, and some scrub hogs. The ditches were breast high in front of his house. A good part of the farm was severely gullied. The pond was inadequate and filled with muddy water.

But James Hill and his wife Johnanna had one tremendous asset. Both were hard and steady workers, willing to make a plan and to follow it year after year.

The first thing the Hills did, soon after they worked out a conservation plan with SCS assistance, was to take the steep land out of crops. They laid out a contoured field of cotton right beside the house on some of the better land. The contoured rows kept the soil from washing away. Fertilizer improved the yield.

In 1955 he took advantage of Federal assistance offered through the flood prevention program to improve pastures and plant trees on critical areas. He sowed sericia lespedeza on the steeper hills, established a program of rotated grazing which would permit him to carry more cows on his pastures. After a few years he acquired a registered Hereford bull to upgrade the herd.

James Hill (c.) discusses his farm plan with Work Unit Conservationist H. I. Weeks (l.) and Soil Conservationist C. D. Potter.

Pine trees and lovegrass were planted on 4 acres of severely gullied land. Through the years they have completely stopped erosion. Thirty feet tall now, straight and silken-needled in the sun, the trees make a fine winter shelter for the cattle and will furnish a good pulpwood cutting in a few years.

At the end of 5 years James Hill bought a pickup truck. His wife began to perk up too. She was proud of the big new deep-freezer that enabled her to preserve good things from the garden.

They improved the house, built a good barn with a hayloft, and graveled the old rutty drive. The ditches in front of the house were filled up and growing grass. The fences were curved to the land's capability.

Better-blooded Duroc hogs replaced the lanky scrubs. "They pay better," says Hill. "They can turn food into meat better than scrubs."

Although Cooperator Hill has always been successful with growing corn, he now finds that 3 acres, planted on the contour on good land and well-fertilized, produces more than enough feed for his hogs and mules.

"I used to plant lots more, but didn't make as much," he reports.

Watermelons he raised and sold gained a local reputation.

Last year, with ACP assistance, he built a new farm pond, and stocked it with bream, bass, and channel cat.

On nice days Hill can take off with his beagle hounds and go hunting for rabbits, secure in the knowledge that farmwork is well organized.

"Conservation has made my life easier. I don't have to cover as much territory," he says. "I can give what I do more time, and I make more with less work."—W. L. HEARD, *State Conservationist, SCS, Jackson, Miss.* ♦

Vegetation Management

Use and proper management of vegetation are basic to sustained profitable use of the 448 million acres of rotation crops, pastures, orchards, and vineyards and the 485 million acres in permanent pasture and range. ♦

Farm Recreation Center Attracts Many Visitors

"OLD TIZZY enjoys her pasture and leisure time since I changed my farm to an outdoor public recreation area," Roy Masterson says. Masterson is the owner of Royma Acres, a 700-acre farm in southeastern Perry County, Ohio.

Tizzy is Masterson's 22-year old mule which shares the farm with 20 ponies and riding horses.

Masterson changed his farm into an outdoor recreation area in 1963. It is easily accessible from State Route 37, located 9 miles east of New Lexington. More than 4,000 people used the area last year. Masterson is hopeful that attendance will double, or triple, in the next 3 to 5 years.

Satisfied customers

Providing camping sites, sanitary facilities, and water for drinking, fishing, and swimming was a big task. Labor and material costs mounted. Sometimes it seemed discouraging. As camping areas developed, the people started inquiring, and almost before Masterson knew it, he was in the recreation business.

"A little money from recreation comes in handy, and satisfied customers spread the word," Masterson said.

"I have received much help from the Soil Conservation Service and Agricultural Stabilization Conservation Service. The building of ponds, pine plantings, and many other conservation practices were advised and encouraged by these agencies. The farm foresters of the Ohio State Department of Natural Resources and the Cooperative Extension Service of Perry County have given much help too."

Masterson has been a cooperator with the Perry Soil and Water Conservation District since 1946. He served one term as district supervisor. In 1957 he received a tree farm award from the Ohio Division of Forestry.

Tizzy gets a choice morsel from a college co-ed camper.

Campfire sites, boating, swimming, and fishing, plus scenic drives through the area, attract many guests. Picnic areas, several large ponds, and pine plantations grace the hillsides. Full-time attendants serve as guides. A trading post is popular. Masterson started with two employees and now has seven full-time workers.

Boy Scouts from neighboring areas and as far away as Columbus, Ohio, come to Royma Acres for camporees.

More than 2½ miles of access roads serve the recreational areas. Trails and walkways lure many visitors. Pow Wow Hill, one of the highest points in the area, furnishes a good view of the thousands of acres of scenic vacationland.

Masterson has set aside 50 acres as a woodland sanctuary with a nature trail winding through it. Many guests use the ball fields, golf driving range, shuffleboard courts, and archery range daily. Square dancing, hayrides, and chapel services are held periodically.—LEO A. CLARK, *Soil Conservation Technician, SCS, Somerset, Ohio.* ♦

Water Control Rescues Orchard From Drowning

TEN YEARS of patient soil and water conservation effort have paid off handsomely in a small, 7-acre apple orchard near Yakima, Wash.

The orchard, in Hi-Land Soil and Water Conservation District, is owned and operated by C. M. Holtzinger Fruit Company, now headed by Charles Holtzinger, son of the man who launched the conservation effort with help of his conservation district and the Soil Conservation Service.

More than a decade ago, the orchard, set in a small beautiful valley 10 miles west of Yakima, had turned into a wet mass of willows, tules, and weeds.

The small stream through the area, fed by springs and irrigation tailwater, ran uncontrolled over the flat area. Overirrigated hillsides added excess water from springs and wet spots that appeared as much as 20 feet above the stream level.

By 1955 the owner had lost 10 acres of apple and pear orchard, and more trees were dying on the hillsides. Something had to be done.

Swamp in the sagebrush

This swampy state was quite a contrast, just as the healthy orchard had been earlier, to the surrounding sagebrush country. It was between 1915 and 1920 that sagebrush began giving way to irrigated orchards. By 1930 the expanded use of irrigation promised an even brighter future.

But there is such a thing as too much water—when used with too little knowledge of what unmanaged water can do on poorly understood soils.

Holtzinger signed an agreement with the conservation district. The SCS assisted in making surveys, including topographic and soil studies on the fields and analysis of the irrigation system and the water management practices.

Soil characteristics turned out to be the heart of the problem. The valley floor had about 5 feet of loamy soil over consolidated gravels and a hardpan. Expanding wet spots on the slope were coming from pressurized aquifers about 12 feet deep. To relieve this pressure would require a deep draintile among the producing apple trees.

The plan was worked out and Holtzinger set to work. By 1959 he had constructed an open drain, approximately 1,000 feet long and 5 feet deep, through the valley floor. He installed in three segments 1,600 feet of draintile, with coarse sand and gravel filter material. A portion of the line was through a wet area that required extra gravel to stabilize the base.

From tules to trees

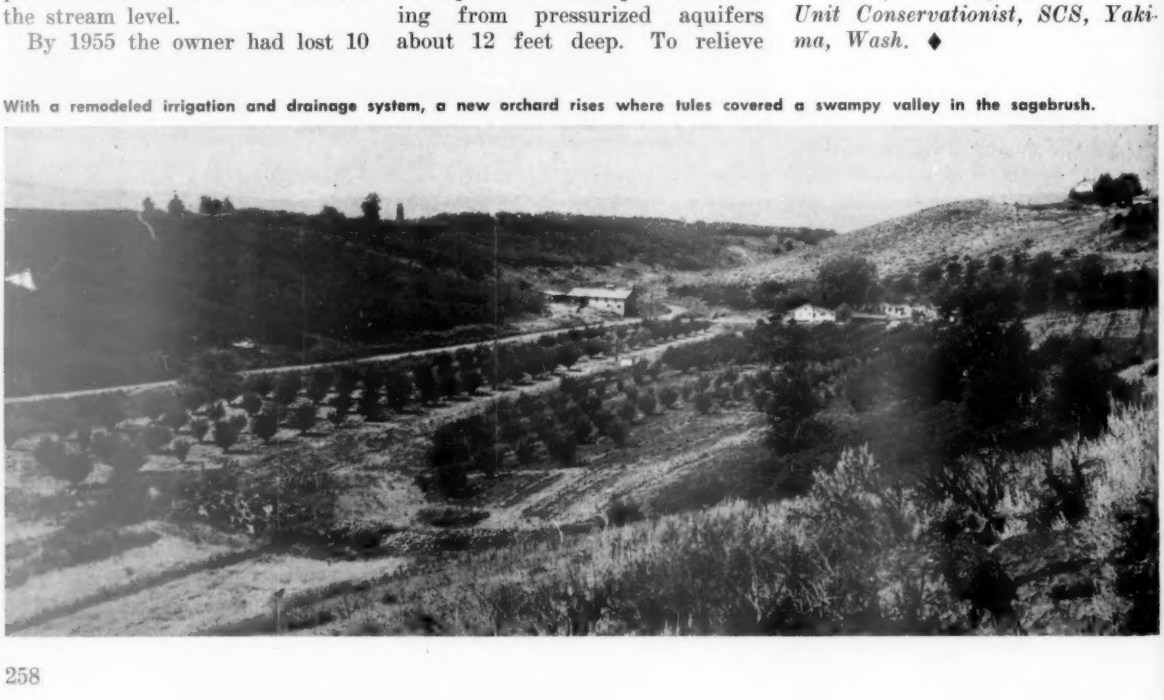
With the excess water removed, he cleaned out the willows and tules, releveled the area, and replanted to fruit trees.

By 1965 a healthy young orchard was growing in the valley again. Young trees have replaced older ones that finally had to be removed.

The elder Holtzinger who started the conservation and management project is now deceased. But his son, Charles, is pleased with the transformation from tules to trees.

—CARL W. WALKER AND DON GLADSON, *Civil Engineer and Work Unit Conservationist, SCS, Yakima, Wash.* ♦

With a remodeled irrigation and drainage system, a new orchard rises where tules covered a swampy valley in the sagebrush.



Wind Damage Less in Great Plains

The Great Plains during the past winter suffered the lowest acreage damaged by wind in 12 years, reports from SCS field offices showed.

The 185 counties in the 10 States where wind erosion normally is a problem reported less than 350,000 acres damaged in the current season compared to 3,142,600 acres damaged in 202 reporting counties last year.

The damaged lands this time include 309,095 acres of cropland, 22,000 acres of rangeland, and the rest in other uses.

Three States in the Plains—Nebraska, Colorado, and Kansas—reported no land damaged thus far.

More soil moisture than usual, snow cover on wide areas of the Northern Plains, and effective soil and water conservation on some past problem areas are the reasons for this decline. ♦

Camping, Recreation Workshop Scheduled

The fifth Family Camping and Outdoor Recreation Workshop will be held July 10-16 and July 24-30 on the Flathead Indian Reservation near Missoula, Mont.

Sponsored by the University of Montana and the Confederated Salish and Kootenae Indian Tribes, this workshop provides instruction and experience in camping and outdoor recreation. College credit can be earned for the course.

On the schedule is a tour of the National Bison Range and quaint St. Ignatius with its original Indian Mission. ♦

Land Use Changes

The United States is experiencing the greatest period of land use adjustment since the completion of land settlement. Advancing agricultural technology and widespread urbanization combine to change the rural landscape with ever-increasing speed. ♦

Number of Farms Down More than Acreage

The number of farms continues to decrease each year more than the land in farms, according to the Statistical Reporting Service, USDA.

Discontinuance of small farming enterprises and merging of larger units with existing farms count for most of this decrease, rather than the encroachment of urban and suburban extensions, widening highways, and other nonfarm uses.

Farm numbers from 1959-66 declined 20 percent while land in farms decreased only 3 percent. The "average farm operator" in 1966 manages a unit of 350 acres—a fifth larger than 7 years earlier.

The number of farms in operation in 1965 was 3,380,000; total land in farms about 1,155 million acres. ♦

Conservation Cartoons on Display

CONSERVATION cartoons by Felix Summers, SCS technical illustrator, recently were on display in what was probably the first one-man show by an employee of the Department of Agriculture in the patio of the USDA Administration Building in Washington.

Summers is on the staff of the Regional Technical Service Center at Lincoln, Nebr. He has been employed by the Soil Conservation Service since 1944. In addition to his technical drawings of engineering structures and other subjects, he has produced hundreds of cartoons that have been used widely by newspapers and magazines throughout the country to tell the conservation story.

The Secretary of Agriculture and other conservation leaders congratulated Summers at a review of the exhibit. ♦

Secretary of Agriculture Orville L. Freeman (foreground) and SCS Administrator D. A. Williams (l.) review the cartoon exhibit with the artist (c.) and the president and secretary-treasurer (l. to r.) of the National Association of Soil and Water Conservation Districts, Sam Studebaker, Tipp City, Ohio, and John Wilder of Somerville, Tenn.

CONSERVATION PROFILE

DeVon Jensen

Idaho

Lost River watermaster is a conservation leader

MENTION "WATER" in Idaho's Big Lost River Valley and folks right away think of DeVon Jensen.

Jensen, watermaster of Idaho Water District No. 27 and member of the State Reclamation Association for 7 years, has been striving since 1936 to improve conservation of the soil, water, and human resources of Big Lost River Valley.

DeVon Jensen was born in southern Utah. When he was 14 years old, his family moved to Salt Lake Valley, then in 1934 to the Lost River Area. There was severe drought that first summer and DeVon stacked hay for money to help the family through a difficult time.

When the Lost River Electric Co-op was formed in 1938 under the Rural Electrification Administration, Jensen was its first secretary-treasurer. He held that position 3 years, then was president of the REA board for 8 years. The co-op started with 180 members; it now has nearly 400 members and more than 300 miles of line.

He served on the board of directors of the Moore Canal Company and was its manager for 3 years.

District supervisor

In 1955, the Governor of Idaho appointed Jensen to the board of supervisors of the Butte Soil and Water Conservation District. He has served as a supervisor since, including 4 years as chairman. He is now secretary of the board and equipment supervisor.

Jensen has been chairman of the watershed committee of the Idaho Association of Soil and Water Conservation Districts for 4 years. He is active in legislative work and played a major role in getting the Idaho Legislature to provide $75,000 for accelerated watershed planning.

Jensen is also director and treasurer of the Idaho association. In 1963, he represented the Governor of Idaho at the National Watershed Congress in Philadelphia.

A conservation irrigator

Jensen owns and operates a 240-acre diversified farm. He has 100 acres under irrigation and raises hay, grain, and potatoes, and maintains a farm flock of sheep. He also has more than 140 acres of irrigated and dryland pastures.

He has nearly completed application of his farm conservation plan. He has leveled and rearranged his irrigation system with the result that seasonal water use was reduced from 6.5 to 3.5 acre-feet.

He is participating, through the district, with the SCS plant materials center in Aberdeen, Idaho, in a trial planting comparing bluebunch wheatgrass with Whitmar wheatgrass.

Jensen helps inform the public about conservation by speaking to many audiences on the principles, purpose, and practicality of basic conservation planning.

DeVon Jensen and his wife, Ruth, have raised a family of three girls and a boy, all away from home now. Mrs. Jensen is treasurer of the Ladies Auxiliary of the Idaho Association of Soil and Water Conservation Districts.

Jensen's recreational interests naturally turn to water. He enjoys fishing in the Big Lost River and its tributaries, high in central Idaho's rugged moutains.

From 1957 to 1961, he was Boy Scout troop committeeman and in 1962 and 1963 district vice chairman for the Boy Scouts. His son, Alan, is an Eagle Scout.

Jensen has also been active in school and church affairs. He served as a director of the Lost River school district 6 years. He was a bishop of the Latter-Day Saints Church for 7 years. ♦

Conservation Methods Save Irrigation Water

Farmers cooperating in soil conservation district and ACP programs in California are making great advances in irrigation water management through the use of proper facilities and methods.

In the seven counties of upper San Joaquin Valley with its approximately 3 million acres of irrigated land, Service personnel worked with the district cooperators on 61,000 acres.

Case studies show savings of 20 to 60 percent in water used per farm. Savings of $5 to $25 in cost per acre and from 3 to 12 hours per day in time of irrigation resulted from irrigation water management.

Southern California farmers made savings of 20 to 80 percent in water by using conservation irrigation techniques. Average use per acre of orchard irrigated with sprinklers is now 3.5 acre-feet, compared to 5 acre-feet formerly used. ♦

Governing Soil Conservation: Thirty Years of the New Decentralization. By Robert J. Morgan. *(1966). Johns Hopkins Press, Baltimore (for Resources for the Future, Washington, D. C.) 399 pp., maps and charts. $8.*

This book is one of Resources for the Future's studies in land use and management. The author, professor of government and foreign affairs at the University of Virginia, was on leave from 1960 to 1962 as research associate with RFF to make the study.

Governing Soil Conservation does not assess or evaluate physical accomplishments on the land. That was the primary emphasis of a companion book, *Soil Conservation in Perspective* by R. Burnell Held and Marion Clawson (reviewed in *Soil Conservation*, January 1966).

This well-written book is, rather, an appraisal of some of the political, economic, and administrative problems that will probably face the soil conservation program in the future. Not since 1952 when W. Robert Parks, now president of Iowa State University, wrote *Soil Conservation Districts in Action*, has this issue been so broadly analyzed by an academician. Morgan at one point admits that man's motives are normally both hidden and complex. But the book *is* a record of man's action in the field of soil conservation over three decades, regardless of motives hidden or exposed.

Professor Morgan's book confirms what many have long felt—that Abe Lincoln's century-old "people's department" is an exciting and challenging home for a career of public service. Old timers will read the book with nostalgia, seeking their names or those of close associates in the intimacy of long-forgotten memorandums or recorded discussions. Newcomers to this arena of public life will find the book a worthwhile reference.

The author has been consciously selective in stressing and analyzing the political processes through which soil conservation policy has been made and executed. He has purposely ventured beyond a conventional analysis of structure and function to focus on the interactions between governmental administration (structure, missions, specialization of skills, procedures, etc.) and political power.

Morgan reminds us that political ecology is as important to the life of a unit of government as physical ecology is to a living organism. It takes more than technical and administrative skills to achieve the purposes of government.

Consequently, the author offers both an analysis and a thesis in the final chapter by which he justifies the subtitle: "Thirty Years of the New Decentralization." This rationale should intrigue, at least, the present-day practitioners of the new "Creative Federalism."

The first seven chapters trace the origins and evolution of several complex issues reflected in the efforts of successive Secretaries of Agriculture to organize conservation administration in accord with the Department's objectives.

In the remaining chapters, he examines Federal-State-district relations; how district governing boards are selected and how they administer district operations; the type and extent of State and local financial and other help to districts; and the functions of district boards as policy-making agencies.

There is truth in Morgan's contention that the story he tells is, in part, a story of bureaucratic struggle for survival and success. I would add that the Soil Conservation Service is entitled to take pride in that struggle, for it is in the Nation's interest.

Professor Morgan states that his book reflects his opinions and no others. I join in his hope that they will generate reflection, even where they invite dissent.

Surely, his predictions for the future are timely. Some years from now it will be interesting to match future facts against present projections. I am confident that Professor Morgan's book will make an important contribution to the future growth of conservation districts.—Norman A. Berg, *Deputy Administrator, SCS.*

The College of Agriculture: Science in the Public Service. By Charles E. Kellogg and David C. Knapp. *1966. McGraw-Hill Book Company, New York. 237 pp. $6.95.*

In 1962, the centennial year for the land-grant colleges as well as the Department of Agriculture, the Carnegie Corporation of New York commissioned Charles E. Kellogg, Deputy Administrator for Soil Survey, SCS, to study "the American colleges of agriculture," and the Administrator, authorized part-time leave without pay for Dr. Kellogg to carry on the study. As his associate, Dr. Kellogg chose David C. Knapp, a political scientist who is now Director of the Institute for College and University Administrators.

This book is the published product of the study. It is based on the accumulated knowledge of Dr. Kellogg backed up by in-depth interviews in more than half the colleges.

Dr. Knapp did most, but not all, of the interviewing. He talked to receivers of the information and services of the colleges as well as to administrators, faculty members, and students. Dr. Kellogg has been accumulating knowledge of agricultural colleges all his adult life—as a student in Michigan, a faculty member in North Dakota, and as a leader of the national cooperative soil survey since 1935.

The authors see *agriculture* as

far bigger than *farming*—as including not only production on farms but also processing and marketing the products, manufacturing the machinery and chemicals needed on farms, and planning for better use of all potential products of farms.

They begin the book with a statement of the challenges and missions of the present colleges of agriculture as they see them. Then follow chapters on their conclusions as to how the colleges can meet the challenges and serve their missions in three major areas—higher education, the quest for new truth, and extending knowledge to the public.

The book not only challenges the colleges to change and to seek excellence; it exudes an optimism that they can bring about the needed changes themselves. It leaves the reader with the feeling that the quest for progress in agricultural technology is in good hands. It should give each member of a college of agriculture a sense of satisfaction with his opportunity for public service.—RUTH NORDIN, *Information Division, SCS.* ♦

Imperatives in Education. BY AASA COMMISSION ON IMPERATIVES IN EDUCATION. *1966. American Association of School Administrators, Washington, D. C. 180 pp. $6 (discount on quantities).*

After 2 years of study, a special commission of the American Association of School Administrators has identified nine "imperatives in education." These are explained, and reasons for their selection are given in separate chapters of this book.

Clearly and concisely stated, the imperatives are designated as "points at which the educational program must be revised and reshaped to meet the needs of the times." They are:

To make urban life rewarding and satisfying.

To prepare people for the world of work.

To discover and nurture creative talent.

To strengthen the moral fabric of society.

To deal constructively with psychological tensions.

To keep democracy working.

To make intelligent use of natural resources.

To make the best use of leisure time.

To work with other peoples of the world for human betterment.

It is especially significant that one of the imperatives selected by AASA is "To make intelligent use of natural resources." For far too long education about natural resources, and particularly education concerning their use and conservation, has been regarded as an appendage to or something apart from the regular school curriculum. Here is solid evidence that school administrators are coming to consider imparting knowledge essential to the wise use of natural resources on a par with the traditional facets of the school curriculum.

Though prepared specifically for school administrators and educational leaders and already placed in the hands of more than 18,000 such people, this work should be of great interest to and can be read with profit by anyone seriously concerned with education of youth.—WALTER E. JESKE, *Information Division, SCS.*

New Publications

Natural Resources of California. PREPARED BY THE U. S. DEPARTMENT OF THE INTERIOR. *1965. With contributions from the Forest Service, Soil Conservation Service, and Army Corps of Engineers. 84 pp., illus. $0.60.* The 14th in the Department of the Interior's series of booklets on the natural resources of the States matches the previous issues (see *Soil Conservation* for April) in its description of the physical characteristics of its subject and in detailing its wealth of water and power, mineral resources, land and forests, and fish and wildlife.

An especially strong section on recreational resources includes a map and a 9-page tabulation of outdoor recreation areas.

Treatment of the work of the several Federal conservation agencies is brief and factual and gives more balanced attention than earlier booklets to organizations outside the Department of the Interior.

Education—Key to Conservation. BY CONSERVATION EDUCATION ASSOCIATION. *Interstate Printers and Publishers, Inc., Danville, Ill.* A series of booklets prepared primarily as helps for school teachers includes the following titles published to date:

(1) Conservation Characteristics of a Good Local Program of Conservation Education. *1965. 8 pp.*

(2) Planning a State Program. *1965. 13 pp.*

(3) Twenty-five Key Guides for Preparing Conservation-Education Publications and Visual Aids. *1965. 13 pp.*

Range Plant Handbook. BY U. S. FOREST SERVICE. *1937, reprinted 1965. Clearinghouse for Federal Scientific and Technical Information, U. S. Department of Commerce, Springfield, Va. Unpaged (more than 800 pp.), illus. $10.95.* This widely known out-of-print handbook of western range plants is available again in a paperback reprint.

Indians of Oklahoma. BY BUREAU OF INDIAN AFFAIRS. *1965. U. S. Dept. of Int. 14 pp., illus. $0.15.* "As an Indian melting pot Oklahoma is unequaled," says the introduction to this brief history of Indians in Oklahoma and description of the status of their lands and today's Federal programs for their welfare. A map shows the movement of some 50 tribes from other parts of the United States to Oklahoma.

Skiing. BY U. S. FOREST SERVICE. *Revised 1966. USDA PA–525. 16 pp., illus. 20¢.* Includes directory of ski areas on National forests.

Salt Tolerance of Fruit Crops. BY LEON BERNSTEIN. *1965. USDA Agri. Inf. Bul. 292. 8 pp., illus.*

Soil Surveys

Clarke County, Mississippi. BY H. L. NEAL, B. G. MOSS, C. H. WHITTINGTON, J. W. KEYES, W. W. NYE, AND C. H. FREEMAN. 1965. 116 pp., illus.; maps 4 inches to the mile (1:15,840).

Bamberg County, South Carolina. BY ERON E. CROW, E. C. MOORE, AND O. L. DODD. *1966. 106 pp., illus.; maps 3.17 inches to the mile (1:20,000).*

From the Administrator:

Conservation and Community Development

FROM the beginning of the work of the Soil Conservation Service emphasis has been placed on helping people help themselves.

The decisions that individual land owners and operators make about conservation and the measures they carry out have a great influence on community development. It is safe to say that a community cannot prosper unless it has a land base adequately protected and improved with a sound soil and water conservation program.

While the individual unit has had major attention in the past, it takes community action to accomplish conservation and economic development.

Involvement of more than farm people is necessary in order to conserve, develop, and improve our land resources. It takes community action—people working together under local leadership with technical and program guidance.

Soil and water conservation districts came about as a result of this need for involvement of a broader base of citizenship. The 3,000 conservation districts, under such leadership and administration, are proving their effectiveness in making conservation on the land a reality. Their programs are geared to action based on local needs and opportunities.

The Soil Conservation Service is now entering into an even larger role in community development. The expansion of nonfarm uses of land creates a wider demand for the specialized technical knowledge that the Service has developed in a quarter century of firsthand experience with soil and water management.

Soil surveys, initially made primarily to give farmers information that would aid them in producing crops, now have become the basis for planning the whole spectrum of land uses—from natural landscape for recreation to the most intensive kinds of industrial development. SCS conservation technology has expanded to match the broader applications of basic soils information.

Soil and water conservation districts, too, are recognizing the need to expand their programs to embrace new phases of conservation and resource development. The report of the Special Committee on District Outlook of the National Association of Soil and Water Conservation Districts, adopted at the organization's recent annual meeting, explores this broadened concept.

The report emphasizes the need for local legal bodies to: (1) Represent all of the community interests in ascertaining conservation needs and responding to their desires; (2) develop conservation and resources development programs for all the people; (3) involve all the people through appropriate representation in the decision-making process relating to national resource conservation and development; and (4) accept and carry out responsibilities, including the expenditures and financial allocations on behalf of all the people, in connection with resource programs and projects.

The committee believes that soil and water conservation districts can be the directing and coordinating bodies to perform these functions at the local level. It correctly points out that districts today represent a going organization of strength and vitality; that they have amassed a body of knowledge and experience of great value in resource management; and that they have constructed a network of cooperative relationships with agencies and organizations of all levels. It would obviously be wiser, more efficient, and less costly to strengthen districts to serve the full range of resource needs than to begin anew to build an entirely new structure.

Such an evolution would add to the present soil and water conservation responsibilities of districts. It could, in many cases, lead to the emergence of broader focused conservation districts, as has already occurred in the State of Massachussetts.

In Massachusetts, under a new districts law enacted a few years ago, the conservation districts now provide assistance to serve all the people's needs—farm, rural nonfarm and urban—on interrelated phases of resource conservation and development. While some of the resource problems, the governmental organization, and population pressures in that State are different from what they are in many others, a forward step has been taken.

The long experience of SCS in working with local people to accomplish soil and water conservation—the heart of community development—can contribute valuable insights into the complex problems of this effort at every field location.

It is the responsibility of every employee to exert his influence to help achieve the needed understandings and relationships for success—the understandings that will permit local leadership, with appropriate program assistance, to fashion realistic activities geared to local needs and opportunities.

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Income Recreation on a Ranch

Story on page 248.

Water, woodland, and natural beauty are the resources a Colorado rancher developed to establish this recreation area as an income-producing enterprise.

The 1½-acre lake was designed and constructed with technical assistance from the Gunnison Soil Conservation District. Trailer and tent campsites with water, sewage disposal, electricity, and barbecue grills are spaced around the lake with access to office and store.

This recreation enterprise is near Blue Mesa Reservoir and the city of Gunnison. Added attractions are trout fishing in nearby river and a stocked lake.

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